

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : **55-041858**

(43)Date of publication of application : **24.03.1980**

(51)Int.Cl.

**B01J 49/00**

**// B01J 47/06**

**B01J 47/12**

**C25B 1/46**

(21)Application number : **53-115139**

(71)Applicant : **TOAGOSEI CHEM IND CO LTD**

(22)Date of filing : **21.09.1978**

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ITOU ATSUI**

### (54) **REGENERATION OF CATION EXCHANGE MEMBRANE**

(57)Abstract:

**PURPOSE:** To lengthen the life of membrane by a simple means in which cation exchange membrane polluted in alkali chloride electrolysis is regenerated by electrifying both cathodic and anodic electrolytes acidified in electrolytic bath.

**CONSTITUTION:** During electrolysis of alkali chloride aqueous solution with cation exchange membrane, the cation exchange membrane is polluted with impurities present in the alkali chloride aqueous solution. When the polluted cation exchange membrane is fitted in an electrolytic bath with the cathodic and anodic electrolytes both of which are acidified with an acid such as hydrochloric acid, etc., and then electrification is made, the impurities in and on the surface of cation exchange membrane are made soluble and further removed to the outside of the membrane by diffusion. Thus, the regeneration of membrane can be attained by a comparatively simple means and thereby an economical profit due to the lengthening of the membrane life can be obtained.

## REGENERATION OF CATION EXCHANGE MEMBRANE

**Publication number:** JP55041858 (A)

**Publication date:** 1980-03-24

**Inventor(s):** OKAZAKI TOSHIMASA; ITOU ATSUJI +

**Applicant(s):** TOA GOSEI CHEM IND +

**Classification:**

- international: **B01J49/00; C08J5/22; C25B1/46; C25B13/08; C25B15/00; B01J49/00; C08J5/20; C25B1/00; C25B13/00; C25B15/00;**  
(IPC1-7): B01J47/06; B01J47/12; B01J49/00

- European: C25B1/46

**Application number:** JP19780115139 19780921

**Priority number(s):** JP19780115139 19780921

**Also published as:**

JP60051395 (B)

JP1325216 (C)

### Abstract of JP 55041858 (A)

**PURPOSE:**To lengthen the life of membrane by a simple means in which cation exchange membrane polluted in alkali chloride electrolysis is regenerated by electrifying both cathodic and anodic electrolytes acidified in electrolytic bath. **CONSTITUTION:**During electrolysis of alkali chloride aqueous solution with cation exchange membrane, the cation exchange membrane is polluted with impurities present in the alkali chloride aqueous solution. When the polluted cation exchange membrane is fitted in an electrolytic bath with the cathodic and anodic electrolytes both of which are acidified with an acid such as hydrochloric acid, etc., and then electrification is made, the impurities in and on the surface of cation exchange membrane are made soluble and further removed to the outside of the membrane by diffusion.; Thus, the regeneration of membrane can be attained by a comparatively simple means and thereby an economical profit due to the lengthening of the membrane life can be obtained.

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L18 ANSWER 1 OF 1 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN  
 AN 1980-33402C [198019] WPIX Full-text  
 TI Regenerating cation exchange diaphragm for electrolysis - of  
 aqueous sodium  
 chloride solution, by electrolysing the diaphragm in acid solution  
 DC E36; J03  
 IN ITOU A; OKAZAKI T  
 PA (TOAG-C) TOA GOSEI CHEM IND LTD  
 CYC 1  
 PI JP 55041858 A 19800324 (198019)\* JA  
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 JP 60051395 B 19851113 (198549) JA  
 ADT JP 1978-115139 19780921  
 PRAI JP 1978-115139 19780921  
 IPCR B01J0049-00 [I,A]; B01J0049-00 [I,C]; C08J0005-20 [I,C]; C08J0005-  
 22  
 [I,A]; C25B0001-00 [I,C]; C25B0001-46 [I,A]; C25B0013-00 [I,C];  
 C25B0013-08 [I,A]; C25B0015-00 [I,A]; C25B0015-00 [I,C]  
 EPC C25B0001-46  
 AB JP 55041858 A UPAB: 20050418  
 In the electrolsis of an aqueous solution of NaCl in an  
 electrolytic cell equipped with a cation exchanging diaphragm to  
 produce NaOH, followed by regeneration of the used diaphragm, the  
 improvement comprises setting the used diaphragm in an  
 electrolytic cell filled with an acidic solution, and subjecting  
 it to electrolysing treatment to obtain a regenerated cation  
 exchanging diaphragm. The acidic solution is hydrochloric,  
 sulphuric, acetic or propionic acid.  
 FS CPI  
 MC CPI: E10-C04J; E10-C04L; E31-B03; E31-F05; E33-A; J03-B03

ANSWER 1 OF 1 CAPLUS COPYRIGHT 2010 ACS on STN

AN 1986:112130 CAPLUS Full-text

DN 104:112130

OREF 104:17755a,17758a

ED Entered STN: 05 Apr 1986

TI Regeneration of cation exchange membrane

IN Okazaki, Toshimasa; Ito, Koji

PA Toa Gosei Chemical Industry Co., Ltd., Japan

SO Japan Tokkyo Koho, 4 pp.

CODEN: JAXXAD

DT Patent

LA Japanese

CC 48-1 (Unit Operations and Processes)

Section cross-reference(s): 49, 72

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI JP 60051395	B	19851113	JP 1978-115139	
19780921 <--				
JP 55041858	A	19800324		
PRAI JP 1978-115139		19780921		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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JP 60051395	IPCI	B01J0049-00 [ICM]; B01J0047-06 [ICA]; B01J0047-12 [ICA]; B01J0047-00 [ICA,C*]; C25B0001-46 [ICA]; C25B0001-00 [ICA,C*]
B01J0049-00	IPCR	C25B0015-00 [I,C*]; C25B0015-00 [I,A]; [I,C*]; B01J0049-00 [I,A]; C08J0005-20 [I,C*]; C08J0005-22 [I,A]; C25B0001-00 [I,C*]; [I,A]; C25B0013-00 [I,C*]; C25B0013-08 [I,A]
C25B0001-46	ECLA	C25B001/46

AB A method for regenerating cation exchange membrane which is used in electrolysis of an alkali chloride solution is described. The contaminated cation exchange membrane is disposed in an electrolysis tank having its cathode and anode chambers filled with acid solution (e.g. HCl solution) and regenerated by electrolysis. Thus, Nafion 336 cation exchange membrane was used for electrolysis of KCl brine at c.d. 25 A/dm<sup>2</sup> to produce 20% KOH. The cation exchange membrane was regenerated by electrolysis in a regeneration tank, where 3.5 N HCl was fed to its cathode chamber, and 250 g/L NaCl was supplied to its anode chamber. The regenerated cation exchange membrane was reused for KCl brine electrolysis for 5 mo., and the current efficiency before and after the regeneration were 90 and 94% resp., and no substantial reduction was observed as compared with 97% efficiency at the beginning of operation.